

ice business, the ice men of New York have been following the forecasts of the Weather Bureau very closely and laying out their work according to the prognostications. They say:

The difference in the results obtained under the new and old system is as great as the difference in the products of the wild and the cultivated soil.

When a report shows that a cold wave is approaching, the superintendent gives orders to have the ice plowed, if it is not already of sufficient thickness. The cold settles down through the grooves or furrows, and as a result the ice making progresses about twice as fast as it otherwise would.

Then, again, when the field is covered with snow the forecasts determine to the superintendent the course to be pursued. If the weather is to continue cold the field may be cleared in its entirety, but if bright sunny days are in prospect the only wise course is to uncover just that section of the field upon which work is progressing and leave the rest protected from the ravages of the sun by the mantle of snow.

HISTORY OF WEATHER PREDICTIONS.

Referring to some remarks by Mr. Charles Foster, jr., in the MONTHLY WEATHER REVIEW for January, 1899, page 17, the Editor solicited further information from him. Mr. Foster had fortunately preserved a copy of an article published by him as an editorial in the Windham County Gazette in the year 1837 or 1838. We take pleasure in reprinting this fragment of early history. Its colloquial style introduces us to the popular editor of a successful country paper sixty years ago. The time is not so far distant when one had to apologize for entertaining such bold ideas and for daring to oppose the narrow views of those who had spent their lifetime in small villages. Since the days of the landing of the *Mayflower*, each successive generation in New England has distinguished itself by a gradually wider departure from the

thoughts and customs of its predecessor. There has been a reaching out after new knowledge, in the hope and belief that the truth would make us free.

Espy, Redfield, Ferrel, and Loomis, as meteorologists; Henry, as physicist; and Morse, as inventor, rapidly developed the ideas that were necessary in order to enable the country to realize the predictions expressed in Mr. Foster's article.

THE WEATHER.

The weather is something which interests everybody, and there are many signs supposed to indicate changes and storms, but nothing, as yet, which seems to definitely settle the matter. A few days ago we were at the grist mill and had a long talk with the miller, Mr. James Stevens, whom most of our readers know, and all will remember. He has a weather ken, sharply observes clouds, notes winds, temperature, etc. He has settled many points as to storm conditions, but says he lacks essential elements to focus things to definite results. He said we could deal with generals, but were short on particulars. We suggested that storm and weather conditions should be studied outside of local limits, be extended over wide areas as near simultaneously as possible; that if Government would undertake observations extending across the continent, the observation lines to run parallel at distances sufficiently apart to catch every phase of what was supposed to be causative of changes, then, when the observations were collated and digested, there would be the necessary data to determine the cause of changes and the law of storms. He concurred in this opinion, believed in this way we might tell where and when storms would gather, and mark out their course and strength. He laughingly said, "Some people would call us crazy, and say it would be wicked to pry into the mysteries of God's Providence, but such stuff is watered moonshine. God never meant to have men die fools, with the opportunities of learning that he has set around about." Such was the substance of our talk. We think it was pretty good common sense, which one day will creep under the skull of some official, and set in motion the machinery of weather observation. We believe it is possible to predict storms, and feel pretty sure it will be undertaken at no distant day. To do it the Government will not step outside of its proper functions.

DESCRIPTION OF TABLES AND CHARTS.

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Table I gives, for about 130 Weather Bureau stations making two observations daily and for about 20 others making only one observation, the data ordinarily needed for climatological studies, viz, the monthly mean pressure, the monthly means and extremes of temperature, the average conditions as to moisture, cloudiness, movement of the wind, and the departures from normals in the case of pressure, temperature, and precipitation, the total depth of snowfall, and the mean wet-bulb temperatures. The altitudes of the instruments above ground are also given.

Table II gives, for about 2,700 stations occupied by voluntary observers, the highest maximum and the lowest minimum temperatures, the mean temperature deduced from the average of all the daily maxima and minima, or other readings, as indicated by the numeral following the name of the station; the total monthly precipitation, and the total depth in inches of any snow that may have fallen. When the spaces in the snow column are left blank it indicates that no snow has fallen, but when it is possible that there may have been snow of which no record has been made, that fact is indicated by leaders, thus (. . .).

Table III gives, for 26 stations selected out of 113 that maintain continuous records, the mean hourly temperatures deduced from the Richard thermographs described and figured in the Report of the Chief of the Weather Bureau, 1891-92, p. 29.

Table IV gives, for 26 stations selected out of 104 that maintain continuous records, the mean hourly pressures as automatically registered by Richard barographs, except for Washington, D. C., where Foreman's barograph is in use. Both instruments are described in the Report of the Chief of the Weather Bureau, 1891-92, pp. 26 and 30.

Table V gives, for about 130 stations, the arithmetical means of the hourly movements of the wind ending with the respective hours, as registered automatically by the Robinson anemometer, in conjunction with an electrical recording mechanism, described and illustrated in the Report of the Chief of the Weather Bureau, 1891-92, p. 19.

Table VI gives, for all stations that make observations at 8 a. m. and 8 p. m., the four component directions and the resultant directions based on these two observations only and without considering the velocity of the wind. The total movement for the whole month, as read from the dial of the Robinson anemometer, is given for each station in Table I. By adding the four components for the stations comprised in any geographical division the average resultant direction for that division can be obtained.

Table VII gives the total number of stations in each State from which meteorological reports of any kind have been received, and the number of such stations reporting thunderstorms (T) and auroras (A) on each day of the current month.

Table VIII gives, for about 70 stations, the average hourly sunshine (in percentages) as derived from the automatic records made by two essentially different types of instruments, designated, respectively, the thermometric recorder and the photographic recorder. The kind of instrument used at each station is indicated in the table by the letter T or P in the column following the name of the station.

Table IX gives a record of rains whose intensity at some period of the storm's continuance equaled or exceeded the following rates:

Duration, minutes..	5	10	15	20	25	30	35	40	45	50	60	80	100	120
Rates pr. hr. (ins.)..	8.00	1.80	1.40	1.20	1.06	1.00	0.94	0.90	0.86	0.84	0.75	0.60	0.54	0.50